RESEARCH HIGHLIGHTS

Selections from the scientific literature

GLACIOLOGY

Refrozen water warms glacier

Meltwater flowing beneath Greenland's glaciers refreezes into large ice units that could be distorting and even warming the overlying ice layers.

Robin Bell of Columbia University's Lamont-Doherty Earth Observatory in Palisades, New York, and her team used radar data to identify subglacial ice units across northern Greenland. The authors found significant warping of the surrounding layers, which they attribute to the refreezing meltwater below.

Moreover, these ice units were found in areas of fast glacier flow. The authors suggest that energy released from the meltwater as it refreezes is warming the ice above, and thus speeding up the glacier's march towards the ocean.

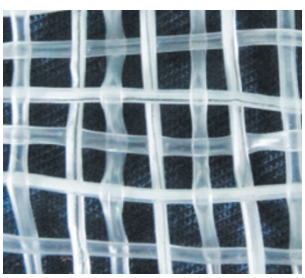
Nature Geosci. **http://doi.org/s7j (2014)**

ELECTRONICS

Stretchy battery woven into fabric

Researchers in China have incorporated relatively powerful lithium-ion wire batteries into textiles — a step towards better power sources for wearable electronics.

Lithium-ion batteries in general are more powerful than current wearable energy storage devices, but can short-circuit and combust if stretched or distorted during use. Huisheng Peng, Yonggang Wang and their team at Fudan University, Shanghai, overcame this by incorporating safer lithium-oxide nanoparticles into carbon nanotube yarns. These yarns, which form the batteries' electrodes, were twisted around a piece of elastic, creating a stretchable structure that could be woven into textiles (**pictured**).



The wire battery produced 10 times more power per cubic centimetre than non-stretchable, thin-film lithium batteries and maintained 84% of its capacity after being stretched 200 times.

Angew. Chem. **http://doi.org/f2r6pv (2014)**

DAVID L. HU/TIM NOWACK PHOTOGRAPHY

ZOOLOGY

How ants link up to build bridges

Fire ants band together into rafts and bridges by each making an average of 14 connections with adjacent ants.

The insects (*Solenopsis invicta*) form networks (pictured) to cross streams and deal with floods. To study the networks' structure, David Hu and his team at the Georgia Institute of Technology in Atlanta froze clumps of ants with liquid nitrogen, coated them with vaporized glue and imaged them with a micro-computed-tomography scanner. The team found that the ants grab hold of each other using adhesive pads on their legs. The insects also tend to orient themselves perpendicularly to one another, with smaller ants slotted in between larger ones to maximize the number of connections between them.

The ants could inspire the development of robots and smart materials that assemble into new structures, the authors say.

J. Exp. Biol. 217, **2089–2100 (2014)**

SCOTT LESLIE/MINDEN PICTURES/CORBIS

ECOLOGY

Stick together to fight disease

Isolated plant populations are more vulnerable to disease than highly connected ones, contrary to popular thinking.

Diseases are thought to spread more quickly in dense populations, which facilitate the transfer of disease from one group to another. But Anna-Liisa Laine of the University of Helsinki and her team found a different pattern when they tracked more than 4,000 populations of the weed *Plantago lanceolata* over 12 years on the Åland Islands in the Baltic Sea. Rather than being protected, isolated populations were infected by the mildew *Podosphaera plantaginis* more often than weeds in dense networks.

The team then studied samples from 22 plant populations in the lab and found that plants from highly connected populations were generally more disease resistant than their counterparts from fragmented populations, possibly because resistance

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